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CENTRAL INTELLIGENCE AGENCY REPOR

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EVALUATE

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1. Further development of an electrolytic ampere hour meter for submarine storage batteries:

   a. This instrument, which was used by the German Navy but was unknown to the Russians, is the subject of experimentation by Dr. Eckard. Eckard was employed by a Soviet AG which was recently dissolved, and is scheduled to join the Oberspreewerk's image tube department. He will take charge of the iconoscope development outlined in the plan for 1949 - 1950.

   b. Development of the meter had been stopped as of the beginning of July 1948. The principal problem involved was the temperature factor as it affected the measuring system.

   c. The principle behind the operation of the meter is the electrolysis of phosphoric acid and the observation of the amount of gas released in the process.

      The electrodes consist of nets covered with platinum black, which shut off the actual electrolytic bath. While these nets are water-tight, the gas which is given off from the bath is able to seep through. Upon the reversal of the current (charging), the platinum on the electrodes effects catalytically the following combustion: $2H_2 + O_2 = 2H_2O$

      A constant temperature was attained
      a. Through the measurement of gas expansion in a chamber ;
      b. Through temperature compensation in the tension-dividing resistor.

2. A conference was held in July 1948 to discuss the program which had been planned for the image tube division for 1949/50.

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The following items were discussed:

a. High-efficiency oscillograph tube; target date 1949; 100,000 km./sec. recording speed (former limit: 50,000 km./sec.);
b. Grünlicht-Filmabtaster (10-inch viewing tube);
c. Projector tube; picture dimensions: 2.5 x 2.5m; a shortage of smelting metal is holding up production. No decision was reached on the question of developing a small 20 kv home projector, similar to the Arnstadt model.

3. Six thousand seven-inch image tubes are scheduled for production by the end of 1948. Glass components are being manufactured at Glashütte Weisswasser (Osram), but that plant is being gravely overworked. Steinbach (Leuchstoff AG) has been unable to supply the yellow components (N2 yellow/2) for luminous agents. The new supplier, Auergesellschaft, Berlin N 65, is making experiments in the production of yellow luminous substances, but thus far the crystals have turned out to be too coarse. They cannot, furthermore, be mixed with N 1 blue/1 because of its white light. The principal current bottleneck is the shortage of cadmium. Fifteen kg. are needed, and Auergesellschaft is attempting to procure the metal 50X1-HUM

4. Discharge tube development is under the supervision of Dr. Thouret, previously of Osram. Mercury high-pressure tubes of the following types are currently being produced:

100 W	30 Atü
200 W	70 "
500 W	30 "
1 KW	30-40 Atü
2 KW	30-40 Atü, quartz bulbs
5 KW	in process of development

The productive capacity of the quartz processing plant is low. Also in production are 40 W, 1.5 Atü spectral lamps, sodium vapor lamps, both of the Edison type, and low-pressure mercury tubes.

5. Neon lights for airfield illumination are being produced by the Oberspreewerk at the rate of 50 to 70 per month. Various components are being produced by the Pintsch firm, Berlin. The lights, which consist of soft glass tubes, .9m. long and 40 to 50 mm. in diameter, are housed in tubes of harder glass.

6. Light bulbs (Blitzlampen): T = 0.002-3 sec; voltage = 4,000 volts; current ≧ 1,000 Amps. These will be used for anti-aircraft searchlights. Their light intensity will be greater than that of the sun's. They will consist of quartz tubes c. one meter in length, 20mm. in diameter, which will be filled with krypton. Electrodes will be of pure tungsten.

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